

ESG Factors in Portfolio Optimization: Current Trends and Challenges

Arisona Lestari Billah^{1*}, Deddy P Koesrindartoto¹, Taufik Faturohman¹

¹ School of Business and Management, Institut Teknologi Bandung, 40116 Indonesia

[https://doi.org/10.35609/gcbssproceeding.2024.1\(68\)](https://doi.org/10.35609/gcbssproceeding.2024.1(68))

ABSTRACT

The integration of environmental, social, and governance (ESG) criteria into investment portfolios has become a crucial area of research, reflecting the growing recognition of the link between financial markets and global sustainability goals. This comprehensive literature review analyzes 157 related documents and examines recent developments in the field of ESG portfolio optimization, the methodologies used, and maps future research directions. Although significant progress has been achieved through the exploration of various approaches such as genetic algorithms, dynamic optimization models, multi-objective optimization frameworks, and new techniques such as machine learning, several areas still require further investigation. Future research should broaden its scope to diverse market contexts and asset classes, assess risk-return trade-offs in ESG investing, develop reliable ESG risk models, address the lack of standardization and consistency in the reporting and measurement of ESG data, and explore the role of central banks and financial regulators in promoting sustainable finance. By continuing to advance research in this area, investors, regulators, and policymakers can develop more effective strategies to align financial management with the imperative of achieving global sustainability, ultimately contributing to a more resilient and equitable economic future.

Keywords: Sustainable Investment, Sustainable Finance, ESG Portfolio Performance, ESG Risk Management, ESG Portfolio Optimization.